# Renoprotective action of statin estimated from mapping renal failure in Japan

**To the Editor:** We have demonstrated [1, 2] the remarkable regional difference in the incidence of end-stage renal disease (ESRD) within Japan, which has an ethnically homogenous population, suggesting the presence of factors other than genetics, which may contribute to the difference. Renoprotective actions of statins, recently proposed [3], were estimated by correlating two maps of ESRD incidence and the amount of expenses prescribed on statins in Japan. Annually, the Japanese Society for Dialysis Therapy reports the numbers of patients entering maintenance dialysis in each prefecture of Japan [4]. We used the findings for 1996 to 2000 to correlate the regional ESRD distribution with regional differences in annual amounts paid for antihypertensive drugs and statins during the same 5 years (Crecon Research & Consulting, Inc., Tokyo, Japan) (Table 1). Multiple regression analysis identified converting enzyme inhibitor ($F = 34.3$) and statins ($F = 7.1$) as independently negative factors arresting the progression of nephropathies, while total antihypertensives as positive factors ($F = 17.8$). Renal protective actions of statins, in addition to converting enzyme inhibitors, those of which we already reported [2], were revealed by analyzing ESRD map. Our epidemiologic approaches for Japan as a whole seemed useful to estimate the renoprotective actions of certain agents that have not been clarified by large-scale clinical trials.

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**Table 1.** Regional differences in annual incidence of ESRD and usage of stain (1996 to 2000)

| Region | ESRD incidence[a] *million/year* | Usage of statin[a] *yen/person/year* |
|---|---|---|
| 1. Hokkaido | 257 ± 5 | 2510 ± 120 |
| 2. Tohoku | 222 ± 5 | 2090 ± 71 |
| 3. Kanto | 230 ± 5 | 1760 ± 80 |
| 4. Koshinetsu | 221 ± 10 | 1780 ± 90 |
| 5. Hokuriku | 213 ± 7 | 2430 ± 90 |
| 6. Tokai | 235 ± 6 | 1820 ± 80 |
| 7. Kinki | 243 ± 7 | 2040 ± 70 |
| 8. Chyugoku | 228 ± 7 | 2110 ± 100 |
| 9. Shikoku | 267 ± 8 | 2090 ± 60 |
| 10. Kyushu | 268 ± 5 | 1840 ± 70 |
| 11. Okinawa | 284 ± 5 | 1090 ± 60 |

Regions are from north (1, Hokkaido) to south (11, Okinawa). Mean ± SEM. $P < 0.0001$ by analysis of variance (ANOVA).

# Inadequate group size compromises conclusions of hemodialysis graft surveillance study

**To the Editor:** A recent study by Ram et al [1] criticizes earlier randomized, controlled trials on their statistical validity, but itself exhibits major statistical flaws.

The authors in [1] criticize others [2] for having a "surveillance group [that] had more prior interventions than the control group." Yet in their own study, it appears that the entry percutaneous transluminal angioplasty (PTA) rate in the control group was 2.5 times higher than the flow group (Table 1, row 2).

The authors in [1] also criticize others [3] for having a "group [that] had a high thrombosis rate because of multiple thromboses in a small number of grafts." Yet the authors admit to this very shortcoming for their flow group, and explain that its high thrombosis rate "is misleading in that it was caused by multiple thromboses in three grafts." The poor comparability between their groups is even more pronounced when assessing entry graft age (Ram et al [1], Table 2) where removing not three, but one graft from the control group makes it 9.6 months younger ($P = 0.043$) than the flow group! These disparities suggest a lack of uniformity among the three groups on the very issues being studied: PTA rate, thrombotic events (Table 1, Row 1), and graft survival (age).

The lack of group uniformity for these crucial parameters is a consequence of the small number of patients inadequate for the high values of variation coefficient ratio of standard deviation to mean value (S/M) (Table 1, rows 3 and 4). To achieve credible data, Bland [4] suggests that authors should choose the number of patients based